

## PRIMARY HYPERPARATHYROIDISM - CASE REPORT OF A FEMALE PATIENT WITH ADVANCED DISEASE

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Primary hyperparathyroidism is a result of increased and uncontrolled function of the parathyroid hormone caused by hyperfunction of one or more parathyroid glands.

The cause of hyperfunction of the parathyroid glands could be adenoma, hyperplasia, carcinoma. The leading sign of disease is hypercalcemia due to higher resorption of calcium from bones, decreased urinary elimination of calcium, and higher absorption of calcium in the bowels.

The paper presents the case report of a 41-year-old female patient treated in our hospital in February, 2003. She came to hospital in poor general condition with suspicion of multiple bone metastases. She explained that she had been feeling unwell for the last four years.

After clinical, laboratory and radiological examination we found adenoma of the left parathyroid gland which was operated. Histologically, adenoma was confirmed.

After supportive and symptomatic therapy, one year after surgical treatment, the patient was back to normal daily activities without any signs of disease. *Acta Medica Medianae 2009; 48(2): 52-54.*

**Key words:** hypercalcemia, hyperparathyroidism, adenoma

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### Introduction

Primary hyperparathyroidism occurs as a result of increased and uncontrolled secretion of parathyroid hormone because of hyperfunction of one or more parathyroid glands. The cause of hyperfunction of parathyroid glands is, in majority of cases, adenoma, followed by hyperplasia, and carcinoma only in 1 to 2% of cases.

The frequency of primary hyperparathyroidism is 1/1000 individuals in general population (1,2). In patients with primary hyperparathyroidism of benign etiology, the ratio of female/male is 3:2, while in patients with carcinoma of parathyroids that ratio is 1:1(3).

The main sign of disease is hypercalcemia caused by an increased resorption of calcium from bones, decreased urinary elimination of calcium and an increased absorption of calcium in bowels. Hypercalcemia seen in some malignancies with bone metastases can pose a problem in respect to differential diagnosis. In patients with primary hyperthyroidism, calciuria has been reported, with an increased tendency to urolithiasis, then poliuria because of an osmotic diuresis which leads to dehydration and loss of weight. Reabso-

ption of phosphate in the kidneys is decreased and that leads to hypophosphatemia and hyperphosphaturia (1-3).

In the clinical presentation, the following complains were noted: poor appetite, nausea accompanied by vomiting, loss of weight, constipation, pain in bones, symptoms of nephrolithiasis, emotional instability, depression. Clinical signs depend on the parathormone values, as well as the level of hypercalcemia.

Diagnosis was established based on anamnesis, objective examination, laboratory analysis, radioimmunological evaluation of PTH in serum, ECHO examination and scintigraphy of thyroidal glands, with PH verification.

### Case report

A female patient, 41 years old, was hospitalized in the Oncology Clinic, Clinical Center Banja Luka in February 2003 with suspicion on multiple bone metastases (scintigraphically verified), and a tumour in the pelvis (CT verified). A detailed anamnesis showed that the patient had had four spontaneous fractures (foot, clavicle, upper arm, forearm) four years before. She had not been examined in the sense of determining the etiology of the fractures. She complained about gastric problems for many years accompanied by minor loss of weight. She also reported poor appetite, nausea and vomiting every day during the last several months, constipation (up to 10 days), regular urination. Menstrual cycles were irregular. Three years before she had a maxillofacial operation in a

specialised institution when a resection of the jaw was performed because of cystic changes.

A few months after coming to hospital, she felt pains in the lumbar part of the spine and in pelvis with pains spreading to both legs. Difficulties in walking, numbness, and dull pain were becoming more intense, and soon she was confined to bed. Then, she was transferred to the Neurology Clinic.

Because of suspected bone metastases (CT of skeleton) she was transferred to the Oncology Clinic, Clinical Center Banja Luka.

Having completed a clinical examination, we found out that the patient was afebrile, eupnoic, without peripheral lymphatic lymphadenopathy, pale, confined to bed. Buccal mucous membrane was pale, teeth missing. Lungs and hearth were normal. Abdomen was soft, there was no pain on palpation. No organomegaly was reported. In the low pelvis suprapubically, a vaguely enclosed mass was palpated, elastic on touch, painless on palpation. Extremities were painful on palpation and movement, fractures were conservatively treated by plaster fixation.

Based on the detailed anamnestic data, objective findings and analysis performed before the patient was hospitalized at the Oncology Clinic, a working diagnosis of primary hyperparathyroidism was made and further examination was conducted in that direction.

Laboratory analyses: SE 8 E 3,6 Hb 116 L 6,8 TR 207 AP 605..615..388 Ca 4,6..4,4 (after Aredia amp. Ca 3,2..3,0) K 2,8..2,7 (ordin. KCL – K 3,2) P 0,8..0,6

Tm markers: AFP 6,6 CEA 0,51 Ca 15-3 26 Ca 125 30 (within the limits of reference values).

Laterally and below the left lobe, ECHO of thyroid gland showed a nodule of 48x25 mm, of heterogeneous structure. Scintigraphy of the thyroid gland confirmed ultrasound finding. Scintigraphy of the parathyroid glands showed an intensive accumulation of radiopharmac next to the thyroid gland and laterally down under the lower pole of the left lobule of thyroid gland, which most probably correspond to increased and hyperactive parathyroid gland.

PTH : 1346..2471 (N.V. up to 53 pg/ml)

Calciuresis: 1000 mg/day

5 HIAA: 19,9  $\mu\text{mol}/24^{\text{h}}$

ECHO of abdomen and kidneys: in both kidneys a few small stones, other findings were regular.

RTG of cranium and in two projections of spine, pelvis with hips, both upper arms, forearms and hands, as well as both thighs and lower legs: on all bones, a thin and diluted bone structure is visible, with tiny osteolytic points, signs of diffused osteoporosis and numerous cystic formations (Figure 1).

RTG of lungs and heart: findings regular.

EKG: sr, f 75/min, intermed. El oss without pathological changes.

Endocrinologist: recommended op. treatment.

During hospitalisation, a minimal movement caused a fracture of diaphysis of the right femur.

Orthopaedic surgeon: It was decided that pathological fracture of diaphysis of the right thigh

bone be treated conservatively by coxofemoral plaster. Surgery was postponed until the primary disease was cured.

Gynecological ECHO: uterus, in the whole, was enlarged - 93x82 mm, with several myoms, the largest being 48 mm in diameter. In the area of the adnexis no pathological changes were seen. The patient was transferred from the Clinic of Oncology Banja Luka to the Institute of Endocrinology in Belgrade where she was operated on April 17, 2003.

OP: Parathyroidectomy sin.inf.

PH: Adenoma gl. parath.

Medical reports showed that the size of tumour was 6x4x3 cm and that it was located in the lower left PT gland, in the area between thymus and lower pole of the left lobe of the thyroid gland.

In the postoperative period, the patient felt much better. She had good appetite, she was gaining weight, stools were regular. Menstrual cycle was normalized two months after operation. With the application of symptomatic therapy, laboratory analysis were within the limits of referred values.

PTH: 987,1..145..19,1

A year after the operation, the patient walks without help, she has gained 15kg, and doesn't complain of any discomfort.

## Discussion

The effect of excessive amounts of parathormon is best seen on the cells of renal tubules, bones, and digestive tract mucous membrane. Its effect on tubular epithelium causes increased phosphaturia, kaliuria and natriuria, with retention of calcium, magnesium and hydrogen, which results in hypophosphatemia and hypercalcemia (4).

Primary hyperparathyroidism is a rare disease which should always be suspected of when having a patient with hypercalcemia as a dominant clinical symptom. Bones become osteoporotic associated with the loss of the osseous mass, and there is a picture of osteoporosis caused by demineralisation of bones. Sometimes, differential diagnosis can mislead to skeleton metastases, but careful study of anamnestic data and precise clinical examination should lead to final diagnosis. In some cases, as it is the case with our patient, some greater structural changes in bones are seen which are called osteitis cystica fibrosa. Hypercalcemia causes an increased gastric secretion, so in those patients the ulcer is present four times more frequently than in the general population (5).

Such patients suffer from nausea, vomiting, constipation, sometimes with a progressive loss of weight. Frequently, digestive problems are so pronounced that they completely mask the real diagnosis. Also, because of many polymorphic neurological problems and psychological disturbances, it occurs that those patients are characterised as neuropsychiatric patients (6,7).

## Conclusion

Hypercalcemia can be a manifestation of different pathological states; however, malignancies

and hyperparathyroidism account for 90% of all cases. Asymptomatic hypercalcemia is often seen in primary hyperparathyroidism, while in the patients with malignancy it is more often an incidental

finding. A detailed study of anamnestic data, clinical examination of the patient, and directed diagnostic study, in most cases, in a short period of time, will lead to the final diagnosis.

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## PRIMARNI HIPERPARATIREOIDIZAM – PRIKAZ SLUČAJA BOLESNICE SA UZNAPREDOVALOM BOLEŠĆU

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Primarni hiperparatireoidizam nastaje kao rezultat povećanog i nekontrolisanog lučenja paratireoidnog hormona zbog hiperfunkcije jedne ili više paratireoidnih žlezda. Uzrok hiperfunkcije paratireoidnih žlezda može biti adenom, hiperplazija, karcinom. Vodeći znak bolesti je hiperkalcemija koja se javlja zbog povećane resorpcije kostiju, smanjene urinarne eliminacije kalcijuma i povećane apsorpcije u crevima.

U radu je prikazan slučaj bolesnice stare 41 godinu, hospitalizovane u lošem opštem stanju, nepokretne, sa polimorfnim tegobama, zbog sumnje na multiple metastaze u kostima. Iz anamnestičkih podataka saznajemo da je bolesnica unazad dve godine, u 4 navrata imala spontane frakture (stopalo, ključna kost, nadlaktica, podlaktica), dugogodišnje gastrične tegobe uz diskretan gubitak na telesnoj težini. Poslednjih meseci, mučnina i povraćanje bili su prisutni svakodnevno uz opstipaciju i neuredne menstrualne cikluse.

Urađenom dijagnostičkom obradom otkriven je tumor donje leve paratireoidne žlezde koji je operativno odstranjen. Histološki je dokazan adenom. Uz simptomatsku terapiju i suportivni tretman bolesnica se godinu dana posle operacije dobro oseća, samostalno se kreće i nema tegoba. *Acta Medica Medianae* 2009; 48(2): 52-54.

**Ključne reči:** hiperkalcemija, hiperparatireoidizam, adenom